

CITY AND COUNTY OF THE CITY OF CHESTER.



# ANNUAL REPORT

TO

THE MAYOR, ALDERMEN, AND COUNCILLORS OF THE  
CITY AND COUNTY OF THE CITY OF CHESTER,

ON THE

# HEALTH OF THE CITY

IN

1915,

BY

D. RENNET, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH.


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1916.



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BRIEF SUMMARY OF REPORT ON HEALTH CONDITIONS  
IN CHESTER DURING 1915.

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No just comparison between the death rate in this year and former years is possible. The population has been depleted of the young and healthy portion in which fewest deaths occur. There is no factor for correction conveniently applicable.

The Birth Rate 21.67 is less by 1.64 than that for 1914.

The Infantile Death Rate, 106.9 per 1,000 births, has been less only on two occasions.

Measles and Whooping Cough were prevalent and caused a number of deaths.

The Death Rate from Pulmonary Tuberculosis is 1.06 and has been lower only once.

The Zymotic Death Rate 1.67 per 1,000 living.

The prevailing conditions have rendered progress in housing reform almost impossible, but what was possible has been done. The provision of new houses becomes more urgent every year.

The preservation of infant life is receiving special care.

## Public Health Committee.

*Chairman*       -       -       -       ALDERMAN H. DODD.

*Deputy-Chairman*       -       -       -       -       COUNCILLOR W. CARR.

### Members :

ALD. EGERTON GILBERT.

MR. H. B. DUTTON.

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MR. J. SHERIFF ROBERTS.

MR. G. J. ROBERTS.

MR. C. P. COCKRILL.

MR. R. T. MORGAN.

THE MAYOR (Mr. J. M. Frost) is an *ex-officio* Member of all the Committees of the Council.

## Staff of Health Department.

*Medical Officer of Health*       -       -       D. RENNET, M.D., D.P.H. ‡

*Assistant Medical Officer of Health*       -       D. C. MOORE, M.D., D.B.H.

*Chief Inspector*       -       -       -       S. H. MOORE.

*Assistant Inspectors*       -       -       -       { L. CHESTERS † \*  
J. BUCKLEY \*  
M. G. H. TRESIDDER.

*Lady Health Visitor & Tuberculosis Nurse*-MRS. C. V. ROCHFORD.

*School Nurse*       -       -       -       MISS A. GIBSON.

*Clerks*       -       -       -       -       { F. THOMAS. \*  
H. HEWITT. \*  
W. CALDER.

*Sanitary Labourer*       -       -       -       J. HANLIN.

\* Absent with His Majesty's Forces.

† Temporary Assistant Inspector.

‡ Specialist Sanitary Officer Western Command.

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## STATISTICAL SUMMARY, 1915.

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Area in Acres	...	...	...	...	...	2,826
Estimated Population	...	...	...	...	...	37,716
Birth Rate	...	...	...	...	...	21.67
Death Rate Crude	...	...	...	...	...	17.65
Infantile Mortality	...	...	...	...	...	106.7
Phthisis Death Rate	...	...	...	...	...	1.06
Deaths from all forms of Tuberculosis	...	...	...	...	...	1.61
Respiratory Death Rate, excluding Phthisis	...	...	...	...	...	3.1
Zymotic Death Rate	...	...	...	...	...	1.67





City and County of the City of Chester.

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# ANNUAL REPORT

OF THE

## MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1915.

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### POPULATION.

The War has made it impossible to adhere to the usual method of computing local populations. Men of military age have been largely drafted to other centres for military training or sent abroad. Probably in Chester that is the only great change in the population, for it is doubtful if the rest of the local population have migrated to any considerable extent to other centres for munition work. In any case a new figure for population has to be used, and that figure has been supplied by the Registrar General, who has based his calculation on the National Register of August 1915. The estimate is probably too low, but there is no satisfactory means of checking it. The figure supplied is 37,479, to which I add 427, the number of Chester residents in institutions outside our district and subtract 90 non-Chester residents enumerated in our population at last Census, making the estimated population at the middle of 1915, 37,716.

### BIRTHS.

There were 853 births registered in Chester during the year, and 7 Chester infants born and registered outside our boundaries, making a total of 860 births for the year. The corresponding

birth-rate calculated on the population of 1914, as instructed by the Registrar General, is 21.67, being 1.64 below that for 1914. It is much the lowest on record.

The following is a comparison of the birth-rates in Chester and various divisions of England and Wales for the year 1915:

England and Wales...	...	...	...	21.9
96 Great Towns ...	...	...	...	22.8
148 Smaller Towns...	...	...	...	21.6
Rural Districts	...	...	...	20.7
CHESTER ...	...	...	...	21.67

There were 36 illegitimate births in place of 53 in 1914.

### STILL BIRTHS.

Thirty-five still births were notified to the Department during the year, three less than in 1914. The circumstances attending 28 of those births were investigated.

### MIDWIVES.

The work of the midwives has been supervised as formerly. Four have had to be reprimanded for non-notification of purulent discharge from infants' eyes.

They attended 87 per cent of the births and called in medical help in 9.7 per cent. of their cases.

### NOTIFICATION OF BIRTHS ACT.

Midwives failed to notify 4.8 per cent. of their cases within the statutory 36 hours, and medical men failed in 17 per cent. of the cases attended by them.

### PROCEDURE FOLLOWING NOTIFICATION.

All the infants born under the care of a midwife were visited soon after birth by the Lady Health Visitor, 742 infants in all. Two hundred of those were handed over to the care of the Chester Ladies' Health Society, and 372 remained under the care of the Health Visitor. The usual proportion of children were found to be hand-fed soon after birth, but by four months after birth a much larger proportion than usual had been changed from breast to hand feeding, 21.8 in place of 5 per cent. in 1914.

**Ophthalmia Neonatorum.**—Five cases were notified (3 in 1914). All made satisfactory recoveries with the exception of one child who has lost the sight of one eye.

**Maternity and Child Welfare.**—Much attention has been given to the subject during the year. The Lady Health Visitor takes every opportunity during her visits to a home to include information and advice on maternity as well as regards the child. An attempt has been made to get in touch with the expectant mother through the midwife but with no great success. The Health Visitor, however, succeeds in reaching and interesting some during the prenatal period.

The Chester Ladies' Health Society also continues to do good work. During the year children between 1 and 5 years have been encouraged to attend their weekly meetings, 89 such children having been supervised in that way. Short talks of interest to expectant mothers have been given regularly by the Health Visitor during the year.

## DEATHS.

There were 666 deaths belonging to Chester during 1915. Using the population figure 37,716 as a basis of calculation, the corresponding death-rate is 17.65 per 1000 living. This is the highest rate registered in Chester since 1906. Comparison of this year's rate with that of former years is useless, the circumstances being so entirely different. The most important increases in deaths are Measles 18, Diarrhœa 8, Bronchitis 13, Pneumonia 11. The deaths from Pulmonary Consumption are down 5, and those from all tuberculous diseases are increased by 3.

The following are the principal mortality rates per 1000 living:—

Disease.	Per 1,000 living.	
	1914.	1915.
Measles ... ..	0.000	0.477
Scarlet Fever ... ..	0.025	0.026
Whooping Cough ... ..	0.202	0.238
Diphtheria ... ..	0.252	0.212
Diarrhœa and Enteritis ...	0.453	0.689
Pulmonary Tuberculosis ...	1.134	1.060
Other Tuberculous Disease	0.327	0.556
Bronchitis ... ..	1.360	1.776
Pneumonia ... ..	0.982	1.325



The following is a comparison of the death-rate in Chester and various divisions of England and Wales, using the population of 1914 for calculation:—

	Crude Death-rate.			
England and Wales...	...	...	...	15.1
96 Larger Towns ...	...	...	...	15.6
148 Smaller Towns...	...	...	...	14.0
Rural Districts ...	...	...	...	14.8
CHESTER ...	...	...	...	16.7

### INFANTILE MORTALITY.

There were 92 deaths amongst infants under 1 year, 84 in 1914, giving a rate of 106.9 as compared with 91 in the former year. Amongst 65 fewer infants there were eight more deaths than in 1914. The cause of death shewing the greatest increase is convulsions. There were 3 more deaths from diarrhœal diseases, four more from bronchitis, and three more from pneumonia. On the other hand there were eleven fewer deaths from prematurity, debility, and marasmus. The circumstances associated with the deaths of those 92 infants are interesting. Ten point 8 per cent. of the mothers were employed in other than house work before confinement. The employment of mothers in munition and other work has become much more common in recent months than in 1915. While in Chester the normal percentage of hand fed children amongst all visited children is about 6 per cent., it has risen in 1915 to 21.8. There is no evidence to shew that during 1915 this was due to employment outside the home, although there is an appreciable increase of employed mothers since the beginning of 1916. Of the 19 deaths of infants from diarrhœa, no less than 17 (89.4 per cent.) were hand-fed, an excellent illustration of the dangers of hand-feeding.

The evidence suggests that this sudden increase in the dangerous practice of hand-feeding infants is not due to the employment of mothers, but rather that the absence of the husband and the consequent need for cooking meals leads to a feeling of unwonted freedom, the enjoyment of which the breast-feeding of infants curtail. The infant suffers while the mother goes on holiday or spends her time from home.

Deaths between the ages of 1 and 2 were increased through deaths from measles, whooping cough, diarrhœa, and tuberculous diseases. Between the ages 2 and 5 years the increase is due

to the same causes with the addition of pneumonia. From 5 to 15 years the number of deaths were reduced, as were those between the ages of 15 and 25. Those in the age group 25—45 were increased slightly, chiefly from pneumonia and heart disease, and the group 45—65 chiefly through deaths from cancer. Deaths at ages over 65 years were increased chiefly through bronchitis and Bright's disease.

### DEATHS ACCORDING TO CAUSE.

**Zymotic Death Rate.**—The zymotic diseases accounted for 63 deaths, giving a death-rate of 1.67, 0.69 greater than last year which was the smallest on record, and 0.23 less than 1913. The increase is mostly due to deaths from measles.

**Diarrhœal Diseases.**—There were 8 more deaths from diarrhœal diseases than in 1914. Nineteen of the deaths occurred amongst children under 1 year. Of those 19 no less than 17 were partly or wholly hand-fed, .89.4 per cent. During 1914 the percentage was 54.

**Diphtheria.**—There were 72 notifications and 8 deaths from diphtheria, 2 less than last year. The distribution in time and place was normal until the last weeks of the year when an increased incidence was seen in Handbridge. During the winter months the type of the disease was severe, and some form of post diphtheritic paralysis was very common.

**Scarlet Fever.**—There were 57 cases notified and one death. The type of the disease continues to be mild, and missed cases are not infrequently met with.

**Measles.**—Measles was prevalent during most of the year and caused 18 deaths; there were no deaths from this disease in 1914. All the deaths occurred amongst children under school age. An arrangement made with the Chester District Nursing Association for the nursing of severe and complicated cases of measles and whooping cough was of little use as voluntary notification was a failure. Five such cases were attended during the year. Measles has now been made compulsorily notifiable.

**Whooping Cough.**—Caused 9 deaths compared with 8 in the previous year. All the deaths were under school age.

**Enteric Fever.**—There was no death from enteric fever.

**Puerperal Fever** caused 2 deaths.

**Cerebro Spinal Fever.**—There were two cases of Cerebro Spinal Fever but no deaths.

The following table is a comparison of the attack rate of certain infectious diseases in Chester and other towns during 1915, calculated on the civil population as given by the Registrar General:—

ATTACK RATES OF CERTAIN INFECTIOUS DISEASES PER 1000  
POPULATION, 1915.

		Scarlet Fever.	Diphtheria.	Enteric Fever.	Puerperal Fever.
Chester	...	1.52	1.95	0.03	0.11
Birkenhead	...	2.22	0.59	0.15	0.09
Stockport	...	5.71	0.82	0.22	0.03
Wallasey	...	2.45	1.04	0.16	0.02
Crewe	...	4.02	1.59	0.07	0.04
Shrewsbury	...	1.99	2.34	0.03	0.03
Warrington	...	13.06	1.24	0.50	0.07
Chester Rural District	...	3.34	1.26	0.36	—
Tarvin	...	2.88	0.23	—	—
Seventy-eight County Boroughs		3.71	1.49	0.20	0.08

**Cancer.**—Various forms of malignant disease caused 56 deaths compared with 41 in the previous year.

**Diseases of Respiratory System (other than Tuberculous).**—Those diseases accounted for 123 deaths, 24 more than in 1914. Sixty-seven of those were due to bronchitis (13 more than last year), and 50 to pneumonia (11 more than last year). Most of the increase in pneumonia was amongst children under 5 years.

**Tuberculous Diseases.**—Seventy cases of tuberculous disease were notified throughout the year, 48 being cases of lung disease and 22 other forms of tuberculosis. There was a marked increase in the deaths from tuberculous meningitis, 11, as compared with 5 last year.

There were 61 deaths from all forms of tuberculous disease, compared with 58 in 1914 and 68 in 1913. Forty were due to lung disease, 11 to tubercle of the brain, and 10 to other forms of tuberculosis.



Public Health (Tuberculosis) Regulations, 1912.

Summary of Notifications during 1915.

Number of Notifications on Form A.														
Age Periods.	Primary Notifications.												Total Notifications (i.e. includ- ing cases previously notified by other Doctors).	
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Totals.		
Pulmonary Males ...	0	0	0	2	1	3	10	5	5	0	0	26	29	
Pulmonary Females ...	0	0	0	1	3	8	8	1	1	0	0	22	24	
Non-Pulmonary Males ...	0	2	1	1	1	2	1	1	0	1	0	10	11	
Non-Pulmonary Females ...	0	4	3	1	0	0	0	1	0	0	0	9	11	
Totals ...	0	6	4	5	4	13	19	8	6	1	0	67	75	

Age Periods.		Number of Notifications on Form B.					No. of Notifications on Form C.			
		Primary Notifications.				Total Notifications ( <i>i.e.</i> includ- ing cases previously notified by other Doctors).	Poor Law Institu- tions.	Sana- toria.	Pavilion, Sealand.	
		Under 5	5 to 10	10 to 15	Totals.					
			0	0	0					0
Pulmonary Males	...	0	0	0	0	0	11	3	11	
Pulmonary Females	...	0	0	0	0	0	4	2	13	
Non-Pulmonary Males	...	0	1	1	2	2	0	0	1	
Non-Pulmonary Females	...	0	1	0	1	1	0	0	1	
Totals	...	0	2	1	3	3	15	5	*26	

\*Cases treated at Sealand.



New Cases admitted to Dispensary, 1915.

INSURED.

Age periods.	0 to I	I to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Totals.
Pulmonary Males ...	0	0	0	0	2	I	6	I	I	0	0	II
Pulmonary Females	0	0	0	0	0	3	4	I	0	I	0	IO
Non-Pulmonary Males	0	0	0	0	I	0	0	0	0	0	0	I
Non-Pulmonary Females	0	0	0	0	0	0	0	0	0	0	0	0
Totals ...	0	0	0	0	3	4	IO	2	I	I	0	22

NON-INSURED.

Age Periods.	0 to I	I to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Totals.
Pulmonary Males ...	0	0	2	0	0	0	0	0	0	0	0	2
Pulmonary Females	0	0	I	2	2	0	I	I	0	0	0	7
Non-Pulmonary Males	0	0	0	0	0	0	0	0	0	0	0	0
Non-Pulmonary Females	0	0	0	0	0	0	I	0	0	0	0	I
Totals ...	0	0	3	2	2	0	2	I	0	0	0	IO

Total Number of Attendances, 397.

Total Number of Patients Attending, 69.

Total Number of Contacts Examined, 30.

Thirty-one new cases attended the Dispensary and received treatment there, together with 38 cases carried over from the previous year. So far as possible the contacts are examined for the detection of early cases.

The Tuberculosis Nurse made 650 visits among the tuberculous cases, taking temperatures and doing other nursing duties.

Table shewing new cases treated at Dispensary during the year.

Twenty-six cases of tuberculous disease were treated at the Pavilion, Sealand, during the year. All were cases in the second or third stage of development, and the great majority derived great benefit from their stay. Twelve cases of non-pulmonary tuberculosis were treated in the Chester Royal Infirmary.

### METEOROLOGICAL NOTES FOR 1915.

The following Meteorological Notes and Tables have been supplied by Mr. W. D. Scouller:—

**Barometric Pressure.**—The average mean barometric pressure for 1915 was 29.868 inches (average for 6 years, 1910-15, 29.883 inches). The highest monthly mean pressure was 30.045 inches in May; the lowest 29.523 in December.

The average monthly range was 1.184 inches.

The highest recorded reading was 30.703 inches on 20th November, the lowest 28.647 on 2nd January.

**Temperature in the Shade.**—All thermometer readings are in degrees Fahrenheit.

The temperature during April and May was slightly below the average. June was a very fine month.

August was the warmest month and June the next warmest. November was the coldest month. The highest temperature recorded in 1915 was 80.5 degrees on the 12th June; the lowest 20.2 on the 27th November.

The mean temperature during 1915 was 47.8 degrees (average for 6 years, 49.2). The average for the maximum thermometer was 55.0 degrees, for the minimum 40.6 (averages for 6 years 56.2 and 42.1 degrees respectively).

The highest monthly mean was 58.8 degrees in August; the lowest 36.8 in November. The mean daily range of temperature was highest in June and lowest in January.

**Humidity.**—The average relative humidity for the year was 80.6 per cent. (6 years average, 80.5 per cent.). The highest monthly relative humidity was 92.0 per cent. in October, the lowest 67.5 per cent. in June.

**Bright Sunshine.**—The total hours of bright sunshine in 1915 were 1524.25 (average for 6 years, 1532.47).

The sunniest month was May with 269.80 hours; June was the next best with 243.90 hours.

The darkest month was December with 32.90 hours of sunshine.

The sunniest day in the year was on the 23rd May when the sun shone for 14.60 hours.

The number of sunless days was 56.

January and December had 12 and 13 days without sunshine.

No month was without a sunless day.

**Rainfall.**—The total rainfall during the year was 26.44 inches (average for 6 years, 25.93 inches).

The wettest months were December and August with 4.26 and 3.90 inches respectively.

There were 25 wet days in December and 17 in August. The driest months were June and September with 0.62 and 0.82 inch respectively.

There were 6 wet days in June and 7 in September.

The number of days when 0.01 inch or more of rain fell was 183; 25 of these were in December, 23 in February, and 22 in January.

The wettest day was the 16th July when the rainfall was 1.08 inches.

**Underground Temperatures.**—The average temperatures of the earth thermometers were as follows:—1ft., 49.8 degrees; 2ft., 51.0 degrees; 3ft., 51.9 degrees; 4ft., 52.3 degrees (average for 6 years, 50.4, 51.6, 52.4, and 53.0 degrees).

**Direction of Wind.**—The prevailing winds throughout the year were southerly and westerly.



## BAROMETRIC PRESSURE.

CHESTER, 1915.

Month.	Mean Pressure reduced to 32° F. & mean sea-level. Inches.				Observed Monthly Range. Range. Inches.	Extremes.
January ... ..	29.551				1.808	Highest : 30.703 28th Nov.
February ... ..	29.512				1.494	
March ... ..	29.975				1.054	
April ... ..	30.033				1.281	
May ... ..	30.045				0.790	
June ... ..	30.009				0.551	Lowest : 28.647 2nd January.
July ... ..	29.836				0.770	
August ... ..	29.980				0.763	
September ... ..	29.993				1.072	
October ... ..	30.918				1.061	
November ... ..	29.942				1.899	
December ... ..	29.523				1.670	
Total ... ..	358.417				14.213	
Average ... ..	29.868				1.184	

## TEMPERATURE IN THE SHADE.

CHESTER, 1915.

Month.	Maximum Degrees F.	Minimum Degrees F.	Mean Degrees F.	Mean daily range of temp'ture Degrees F.	Extremes.	
					Highest Degrees F.	Lowest Degrees F.
January ... ..	44.6	35.8	40.2	8.8	56.0	26.7
February ... ..	45.8	33.8	39.8	12.2	53.9	24.7
March ... ..	47.4	35.1	41.3	12.3	58.5	22.2
April ... ..	53.4	38.8	46.1	14.6	67.3	30.6
May ... ..	60.7	41.5	51.1	19.2	74.5	31.5
June ... ..	68.4	47.7	58.1	20.7	80.5	38.5
July ... ..	64.6	50.2	57.4	14.4	71.5	42.5
Aug <sup>u</sup> st ... ..	65.7	51.9	58.8	13.8	73.8	43.9
September ... ..	64.7	47.0	55.9	17.7	74.5	33.6
October ... ..	54.6	39.6	47.1	15.0	63.6	29.6
November ... ..	43.4	30.3	36.8	13.1	56.0	20.2
December ... ..	46.8	35.6	41.2	11.2	54.5	24.5
Total ... ..	660.1	487.3	573.8	172.8	...	...
Average ... ..	55.0	40.6	47.8	14.4	...	...

## HUMIDITY.

### CHESTER, 1915.

Month.	Dry Bulb. Degrees F.	Wet Bulb. Degrees F.	Dew Point. Degrees F.	Relative Humidity. Per Cent.
January ... ..	40·4	38·6	36·3	86·0
February ... ..	39·1	37·3	34·6	85·6
March ... ..	41·9	39·4	36·3	80·5
April ... ..	47·5	44·0	40·1	75·8
May ... ..	53·2	48·4	43·6	70·0
June ... ..	59·7	54·0	49·0	67·5
July ... ..	59·6	55·0	50·9	73·0
August ... ..	60·4	57·3	54·6	81·5
September ... ..	57·0	53·5	50·2	78·5
October ... ..	46·7	45·7	44·6	92·0
November ... ..	36·1	34·9	33·1	89·0
December ... ..	41·6	40·1	38·2	87·5
Total ... ..	583·2	548·2	511·8	966·9
Average .. ..	48·6	45·7	42·6	80·6

## BRIGHT SUNSHINE.

### CHESTER, 1915.

Month.	Total Bright Sunshine. Hours.	Most Sunshine in One Day		Number of Sunless Days.
		Amount. Hours.	Date.	
January ... ..	51·70	5·20	26	12
February ... ..	86·95	8·60	24	4
March ... ..	91·35	7·95	27	2
April ... ..	160·60	12·85	28	2
May ... ..	269·80	14·60	23	1
June ... ..	243·90	14·40	18	1
July ... ..	162·40	10·65	5	1
August ... ..	132·55	11·20	23	2
September ... ..	159·40	10·00	8	1
October ... ..	56·20	7·75	29	9
November ... ..	76·50	6·30	2	8
December ... ..	32·90	5·05	8	13
Total ... ..	1524·25			56
Average ... ..				

# RAINFALL.

## CHESTER 1915.

Month.	Total Inches.	Number of days with rain (.01" or more).	Greatest fall in one day.	
			Amount. Inches.	Date
January ... ..	2.60	22	0.50	3rd
February ... ..	2.50	23	0.24	28th
March ... ..	1.08	14	0.17	24th
April ... ..	1.27	16	0.30	13th
May ... ..	1.86	11	0.35	4th
June ... ..	0.62	6	0.33	25th
July ... ..	2.94	17	1.08	16th
August ... ..	3.90	17	0.85	16th
September ... ..	0.82	7	0.30	24th
October ... ..	1.74	14	0.78	23rd
November ... ..	2.85	11	1.00	12th
December ... ..	4.26	25	0.93	4th
Total ... ..	26.44	183		
Average ... ..				

# UNDERGROUND TEMPERATURE.

## CHESTER, 1915.

Month.	1 Foot. Degrees F.	2 Feet. Degrees F.	3 Feet. Degrees F.	4 Feet. Degrees F.
January ... ..	39.1	41.2	43.5	44.3
February ... ..	39.1	41.3	43.5	44.3
March ... ..	42.0	43.4	44.5	45.1
April ... ..	46.3	46.6	46.7	47.1
May ... ..	55.0	53.8	52.4	52.1
June ... ..	63.5	61.1	58.5	57.9
July ... ..	61.7	61.4	60.4	60.3
August ... ..	62.7	62.6	61.8	61.5
September ... ..	59.0	60.5	61.0	61.3
October ... ..	50.4	54.1	56.9	57.8
November ... ..	38.9	44.4	49.3	50.9
December ... ..	39.7	41.9	44.4	45.5
Total... ..	597.4	612.3	622.9	528.1
Average ... ..	49.8	51.0	51.9	52.3



## DIRECTION OF WIND.

CHESTER, 1915.

Month.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January ... ..	0	0	2	4	6	5	2	12	0
February ... ..	1	0	1	11	7	3	2	2	1
March ... ..	5	2	2	2	1	3	7	10	0
April ... ..	2	3	1	3	1	4	5	10	1
May ... ..	5	4	8	4	2	1	2	5	0
June ... ..	1	0	1	14	9	2	0	3	0
July ... ..	2	0	0	1	6	3	6	13	0
August ... ..	2	1	1	6	5	3	0	13	0
September ... ..	5	1	1	8	8	3	1	3	0
October ... ..	5	0	1	15	9	0	1	0	0
November ... ..	3	3	1	7	4	4	4	4	0
December ... ..	3	0	0	8	8	3	4	4	1
Totals ... ..	34	14	18	83	66	34	34	79	3

**CANAL BOATS ACTS, 1877 and 1884.**

There were 541 Canal Boats on the Register at the end of the year, 11 more than in 1914.

Thirty-five new boats and 4 re-registered were added during the year and 28 withdrawn.

One hundred and twenty-three boats were inspected and 9 were found infringing the Act and Regulations, there being 10 contraventions. Notices were issued for those infringements and all have been remedied. The cabins were registered for 497 persons, but the actual number of persons occupying them was 276, 146 adult males, 61 adult females, 27 children of school age, and 42 children under school age. Those numbers are considerably down from last year except for children under school age, which is slightly increased.

**FACTORIES AND WORKSHOPS ACT, 1901.**

There were 264 Registered Workshops on the Register, four more than the previous year.

During the year 210 visits of inspection were made to factories and workshops and 50 defects were found and remedied, particulars of which are given below.

Circulars were sent to all employers likely to employ out-workers, and 29 lists were returned giving the names and addresses of 59 workpeople so employed. The homes have been regularly visited and found satisfactory. No case of infectious disease has occurred among out-workers.



The following tabulation gives details of the action taken by the Public Health Department in respect of workshops, work-places, and factories, and of negotiations carried on in conjunction with H.M. Inspector of Factories.

## FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK.

### 1.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

PREMISES. (1)	NUMBER OF		
	Inspections. (2)	Written Notices (3)	Prosecutions. (4)
<b>Factories</b> ... .. (Including Factory Laundries),	37	10	0
<b>Workshops</b> ... .. (Including Workshop Laundries).	142	25	0
<b>Workplaces</b> ... .. (Other than Outworkers' Premises included in Part 3 of this Report).	31	0	0
Total ... ..	210	35	0

### 2.—DEFECTS FOUND.

PARTICULARS.	NO. OF DEFECTS.	
	Found.	Remedied.
<i>Nuisances under the Public Health Acts :—</i>		
Want of cleanliness ... ..	12	12
Want of ventilation ... ..	4	4
Other nuisances ... ..	15	15
Sanitary accommodation {	Insufficient ... ..	2
	Unsuitable or defective ... ..	2
	Not separate for sexes ... ..	3
<i>Offences under the Factory and Workshop Acts :—</i>		
Breach of Special Sanitary Requirements for Bakehouses (Ss. 97 to 100) ... ..	12	12
Total ... ..	50	50

### 3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LIST.				Notices served on Occupiers as to keeping or sending Lists.
	Lists received from Employers.				
	Sending twice in the year.		Sending once in the year.		
	Lists.	Workmen.	Lists.	Workmen.	
Wearing Apparel Making, etc.	20	34	9	9	106
Lace, Lace Curtains and Nets	...	6	...	...	...
Furniture and Upholstery ...	...	10	...	...	...
Total ... ..	20	50	9	9	106

**4.—REGISTERED WORKSHOPS.**

Workshops on the Register (S. 131) at the end of the year.						Number.
Dressmaking and Millinery	..	...	...	...	...	69
Bakehouses	...	...	...	...	...	42
Drapery and Tailoring	...	...	...	...	...	35
Boot and Shoe Making and Repairing	...	...	...	...	...	28
Blacksmiths and Shoeing Smiths	...	...	...	...	...	10
Cabinet Making and Upholstering	...	...	...	..	..	7
Building Contractors	...	...	...	...	...	7
Laundries	...	...	...	...	...	6
Miscellaneous	...	...	...	...	...	60
Total Number of Workshops on Register ...						264

**5.—OTHER MATTERS.**

CLASS.						Number.
Matters notified to H.M. Inspector of Factories :—						
Failure to affix Abstract of the Factory and Workshop Acts (S. 133, 1901)						2
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Acts (s. 5, 1901) {						10
						10
Underground Bakehouses (s. 101) in use at the end of the year ...						1

**BAKEHOUSES.**

There are 42 bakehouses on the Register. One new bakehouse has been added to the Register during the year.

Ninety-six inspections were made and 35 contraventions were reported.

It was found necessary to serve 12 notices, other defects being remedied on verbal notice.

The contraventions were as follows:—

Absence of sanitary receptacle	...	...	4
Absence of eaves guttering and fall pipes	...	1	
Accumulation of manure	...	...	3
Defective and dirty W.C. basins	...	...	4
Defective floors	...	...	2
Defective gully traps	...	...	4
Dirty surroundings	...	...	2
Dirty interior walls and ceiling	...	...	12
Dirty floor	...	...	3

## PROTECTION OF FOOD SUPPLIES.

### Sale of Food and Drugs Acts, 1875—1907.

During the twelve months ended 31st December, 100 samples of food have been taken and submitted for analysis.

The samples were as follows:—

					Samples purchased.	
					Formally.	Informally.
Milk	...	...	...	...	35	3
Butter	...	...	...	...	18	1
Lard	...	...	...	...	8	—
Margarine	...	...	...	...	6	1
Coffee	...	...	...	...	5	1
Bread	...	...	...	...	3	—
Rice	...	...	...	...	3	—
Cheese	...	...	...	...	2	—
Pepper	...	...	...	...	2	—
Strawberry Jam	...	...	...	...	2	—
Damson Jam	...	...	...	...	1	—
Flour	...	...	...	...	1	—
Pepper, White	...	...	...	...	1	—
Raspberry Jam	...	...	...	...	1	—
Skimmed Milk	...	...	...	...	1	—
Tinned Shrimps	...	...	...	...	—	1
Total					93	7

Twelve of the above samples were adversely reported upon (9 of milk and one each of butter, coffee, and pepper). Proceedings were instituted in respect of the 9 samples of milk.

With reference to two of the samples of Margarine, Nos. 22 and 68 respectively, the articles were not exposed for sale and were not labelled in the manner prescribed by Section 6 of the Margarine Act 1887. A letter of caution was sent to the vendor of each sample calling attention to the requirements of the Sale of Food and Drugs Act. In the case of the sample of White Pepper, proceedings were not instituted, but the attention of the vendor was called to the result of analysis and requested to furnish an explanation.

**Milk Samples.**—During the year three samples of milk were obtained at farms directly after the milking of the cattle, and in each instance was found to be richer in fat than the prescribed



limit in the Sale of Milk Regulations 1901. The samples were numbered 37, 38, and 39 respectively. Milk sample No. 37 was from the same cattle as samples 28 and 36, and was certified to contain 3.2 per cent. of fat and 9.09 per cent. of solids not fat. Milk samples Nos. 88 and 89 were obtained from the cattle on the same farm—88 being evening's milking and 89 morning's—and correspond with samples 81 and 82.

The Public Analyst certifies both "appeal" samples to be genuine and of good quality, the composition of the samples being respectively:—

No.	Fat.	Solids not Fat.
88	4.45	8.77
89	3.45	9.17

Five of the 9 samples of milk adversely reported upon contained sediment consisting partly of cowdung. The position in Chester as regards dirty milks does not improve. The difficulties in producing a clean milk no doubt are considerable, but they are far from insurmountable.

Apart from the dirty condition of those samples the quality of the milk supplied was satisfactory. The average percentage of fat in the 38 samples analysed was 3.92 as compared with 3.56 of last year and 3.57 for 1913. The average for the solids not fat was 8.73 as compared with 9.04 for last year.

The following tabular statement shews action taken in regard to the samples reported not to be genuine.

Warnings were given in cases not taken into Court.

Name of Article,	Identification Number.	Result of Analysis.	Legal proceedings instituted under the Sale of Food and Drugs Acts.			
			Fines inflicted.		Costs imposed	
			£	s.	d.	£ s. d.
MILK ...	... 3 ...	Sediment 6 parts per 100,000. The sample contains sediment consisting partly of cow dung, equal to 4.2 grains per gallon ...				Case withdrawn
This case, against a local dairyman, was withdrawn on the farmer supplying the milk being fined in respect of samples Nos. 4 and 5, which were taken in course of delivery.						
MILK ...	... 4 ...	Sediment 6.2 parts per 100,000. The sample contains sediment consisting partly of cow dung, equal to 4.3 grains per gallon ...	1	0	0	... 1 5 0
MILK ...	... 5 ...	Sediment 13.3 parts per 100,000 The sample contains sediment consisting partly of cow dung, equal to 9.3 grains per gallon ...	2	0	0	... 1 5 0

			Legal proceedings instituted under the Sale of Food and Drugs Acts.						
Name of Article.	Identification Number.		Result of Analysis	Fines inflicted. £ s. d.			Costs imposed. £ s. d.		
MILK ...	...	28 ...	Deficient in 8·7 per cent. of Fat	Case withdrawn					
This case was withdrawn on the Magistrates dismissing a case against the farmer. See sample No. 36.									
MILK ...	...	36 ...	Deficient in 5·3 per cent. of Fat	Case dismissed					
In this case the Magistrates found it proved that no cream had been abstracted, and from the expert evidence it was shown that such a variation was possible.									
BUTTER	...	42 ...	Contained 0·3 per cent. of water in excess of the standard	...	{ A letter of caution was sent by the Town Clerk to the Vendor				
MILK ...	...	49 ...	Sediment 4·5 parts per 100,000. The sample contains an amount of sediment consisting of about one-half cow dung, equal to 3·1 grains per gallon	...	2	0	0	...	0 15 0
COFFEE	...	54 ...	Contains 63 per cent. Chicory...	...	{ This was purchased informally				
WHITE PEPPER	...	76 ...	Sample contained an excess of 9 per cent. of husk	...	{ The attention of the Vendor was called to the result of the analysis, and requested to furnish an explanation				
MILK ...	...	81 ...	22·1 per cent. added water and 9 per cent. deficient in Fat	...	1	5	0	...	0 15 6
MILK ...	...	82 ...	24·95 per cent. added water and 15 per cent. deficient in Fat	...	1	5	0	...	0 15 6
MILK ...	..	83 ...	Sediment 8·8 parts per 100,000. The sample contained sediment of not less than two-thirds cow dung, equal to 6·1 grains per gallon	...	0	10	0	...	0 15 6

The use of preservatives in food is very common, 13 per cent. of those examined having contained boric acid. Fortunately its use is not common in milk, nor is it necessary. The position also, as regards cheese, is anomalous and might well form the basis of action.

The following is an extract from the Annual Report of the City Analyst:—

“ The number of samples containing preservatives is very high, and in a large number of samples it was unnecessary. In each case boric acid had been used, it was found in every sample of margarine examined, whilst it was only present in one sample of butter, the quantity present was small, from 17 to 35 grains per lb. It is of interest to mention that

although the Local Government Board allows the use of boric acid in food up to 35 grains per lb., prosecutions have been carried out in London and convictions have been obtained for as small an amount as 21 grains per lb., on the ground that even this amount is injurious to health, and the highest authorities on this subject gave evidence for the prosecution.

Two samples only of cheese were received during the year, and both of those were milk cheese containing over 30 per cent. of butter fat. It would be well if standards could be fixed for cheese, for at present skim cheese are allowed to be sold as Cheshire cheese, and if this continues it cannot fail to injure the good name of Cheshire cheese, whilst it is illegal to sell margarine cheese (i.e., cheese made from skim milk and the deficiency in butter fat made up with margarine) under any other title. A skim cheese may be sold under the title of one of the best classes made, although the feeding value of a skim cheese is far less than of a margarine cheese."

## PUBLIC HEALTH (MILK AND CREAM) REGULATIONS 1912.

REPORT FOR THE YEAR ENDED 31ST DECEMBER, 1915.

### 1.—Milk and Cream not sold as Preserved Cream.

			No. of Samples examined for the presence of a Preservative.		No. in which a Preservative was reported to be present.
Milk	...	...	35	...	nil
Skimmed Milk	...	...	1	...	nil
Cream	...	...	nil	...	nil

In addition to the thirty-five milk samples purchased officially three samples were taken on appeal to cow, making the total of 38 samples of milk analysed.

### 2.—Cream sold as Preserved Cream.

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct:—

(1) Correct statements made	...	...	4
(2) Statements incorrect	...	...	nil



(b) Determination made of milk fat in cream sold as Preserved Cream:—

(1) Above 35 per cent.	...	...	4
(2) Below 35 per cent.	...	...	nil

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article v. (1) and the proviso in Article v. (2) of the Regulations have not been observed.—Nil.

(d) Particulars of each case in which the Regulations have not been complied with and action taken.—Nil.

3.—Thickening substances. Any evidence of their addition to cream or to preserved cream; action taken where found.—Nil.

### **BACTERIOLOGY OF MILK.**

Eleven samples of milk were examined at the Laboratories of the University of Liverpool.

Bacillus coli was found in each sample in quantities varying from 1 c.c. to .001 c.c., that is to say bacillus coli was present in numbers varying from 1 to 1,000 in about 16 drops of milk. None proved to be tuberculous.

### **REGISTRATION OF WHOLESALE DEALERS IN MARGARINE AND MARGARINE CHEESE.**

(Sale of Food and Drugs Act, 1899, Section 7).

There are the names of 15 persons on the register. No new application has been received during the year.

### **DAIRIES, COWSHEDS, AND MILKSHOPS.**

There are 24 registered Cowkeepers in Chester.

Twenty-one inspections have been made and 7 contraventions reported. Three notices were served calling the attention of the occupiers to the defects. The remainder of the contraventions were verbally notified and were remedied.

The particulars of the contraventions are as follows:—

Accumulation of manure	...	...	...	...	2
Limewashing	...	...	...	...	2
Paving	...	...	...	...	2
Defective drains	...	...	...	...	1



Ninety persons are registered to sell milk in the City. The names of ten persons have been added to the register during the year and ten cancelled.

Thirty-nine inspections were made of milkshops and 17 contraventions were reported in respect of which seven notices were served.

The contraventions are as follows:—

Accumulation of manure	...	...	...	3
Defective paving of yard	...	...	...	2
Defective paving of stable	...	...	...	2
Inadequate Ventilation	...	...	...	2
Limewashing	...	...	...	4
Uncovered Milk	...	...	...	4
				—
				17

The defects have been remedied in each case.

### FRIED FISH SHOPS.

Forty-six inspections were made of the 23 premises known to the Department where this business is carried on. Several instances of want of cleanliness were reported and remedied, and in one case where the cooking arrangements were inadequate an efficient cooking range was provided.

### FOOD INSPECTION.

During the year the following visits have been made in connection with the examination of food.

Visits to Slaughter-houses	...	...	...	676
Visits to Butchers' Shops and Public Market	...	...	...	180
Visits to Fish Shops	...	...	...	223
Visits to other Shops	...	...	...	214

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Fifty-seven carcasses or portions of carcasses of beef, six carcasses of calves, 5 of sheep, 2 of hogs, 4 tons 4 cwt. of carrots, and various small quantities of fruit were destroyed as unfit for food. The estimated weight of condemned food being 10 tons, 17 cwt. 2 qrs. Formal seizure was made of the carrots and a

portion of a carcase of a sheep. In both cases the owners were cautioned. The following table shews the instances and various causes for which the meat was condemned:—

Tuberculosis	...	...	...	...	39
Distomatosis	...	...	...	...	5
Cirrhosis	...	...	...	...	4
Dropsy	...	...	...	...	4
Decomposition	...	...	...	...	3
Result of accident	...	...	...	...	3
Immaturity	...	...	...	...	2
Scour	...	...	...	...	2
Abscess	...	...	...	...	1
Chondroma	...	...	...	...	1
Hæmorrhagic Entertis	...	...	...	...	1
Hydatid Cysts	...	...	...	...	1
Nephritis	...	...	...	...	1
Pleuro-Pneumonia	...	...	...	...	1

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### COMMON LODGING HOUSES.

There has been no change in the register for Common Lodging Houses during the year. There are 8 houses on the register having 51 rooms and providing accommodation for 255 persons.

In the course of the year 84 visits were made during the day and 3 during the night, 47 contraventions being reported.

The contraventions consisted of the following items, viz.:—

Dirty Bedding	...	...	...	...	13
Dirty Floors	...	...	...	...	10
Defective Floors	...	...	...	...	2
Broken W.C. Basin	...	...	...	...	2
Foul and Insanitary W.C. Basins	...	...	...	...	5
Obstructed Drains	...	...	...	...	2
Defective Staircase	...	...	...	...	1
Defective Yard Paving	...	...	...	...	1
Dirty Yard	...	...	...	...	1
Absence of card showing number of occupants for each room	...	...	...	...	1
Overcrowding	...	...	...	...	5
Dilapidated Bedsteads	...	...	...	...	4
Insufficient Lavatory Accommodation	...	...	...	...	1

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Six preliminary nuisance notices were served and 2 letters sent.

All the defects have been remedied.

## HOUSING.

During the past twelve months the administration under the Housing Acts has suffered through depleted staff, scarcity of labour and the increasing cost of material.

The demand for men for military service renders remedial work in connection with housing a practical impossibility.

House to house inspections have been made of property which could be repaired without displacing the tenant, and 213 records compiled.

In connection with those houses examined notices were served under the Public Health Acts in respect of 27, and in respect of 40, notices were served under Section 15 of the Housing, Town Planning, etc., Act, 1909. In addition seven houses have been put into a sanitary condition after interviewing the owner.

Seventy-four houses have been dealt with during the year.

37, 39, and 41 Leadworks Lane, which were closed by the owner after service of notice under Section 15 of the Housing and Town Planning Act in 1914, have been thoroughly overhauled and re-let for habitation.

Where it is found impossible for the time being to have structural repairs executed, every effort is made to have the cleansing of the premises carried out.

The following 27 houses were dealt with under various Sections of the Public Health Acts :—

Situation of Premises.	Action taken by Housing Committee.	Result of Action taken.
7, 27, 29, 31, and 41, Steven Street	Statutory Notices under Public Health Acts	Sanitary condition now satisfactory
18, 22, 24, & 32, Oulton Place	Ditto ... ..	Notices outstanding
4, The Newgate ...	Ditto ... ..	Ditto
2, 3, 4, and 6, Princes Court	Ditto ... ..	Ditto
4, 6, 12, 14, & 16, Cable Street	Ditto ... ..	Ditto
1, 4, 5, 6, 7, 8, 9, & 10, Stone Street	Ditto ... ..	Ditto



The following 47 houses were dealt with under Section 14 and 15 of the Housing and Town Planning Act, 1909 :—

Situation of Premises.	Action taken by Housing Committee.	Result of Action taken.
1, 3, 5, 9, 11, 13, 15, 17, 25, 33, 35, 37, 39, & 43, Steven Street	Notices served under Section 15 of the Housing, Town Planning, etc., Act, 1909	Eight of the houses have been properly renovated. Nos. 5, 9, 11, 13, and 15 are still outstanding
10, 12, 14, 16, 20, 28, 30, & 34, Oulton Place	Ditto ... ..	Nos. 10, 12, and 14 have been properly renovated. Nos. 16, 20, 28, 30, and 34, are still outstanding
6 & 8, Newgate Street	Ditto ... ..	Repairs so far executed are unsatisfactory
1, 5, 7, 9, 11, 8, & 10, Princes Court	Ditto ... ..	By consent of the Housing Committee the notices are suspended for the present
2, 8 & 10, Cable Street	Ditto ... ..	Notices still outstanding
2, 3, 11, 12, 13, & 14, Stone Street	Ditto ... ..	Ditto ditto
1, Charlotte Street ...	Owner interviewed without representation to Committee	Sanitary conditions now satisfactory
32, 34, 36, 38, 40, & 42, Pyecroft Street	Ditto ... ..	Ditto ditto

### SANITARY WORK.

At the request of residents 4 sanitary surveys have been made of dwellings. For each survey a small charge is made which varies according to the magnitude of the work.

The fees received from this source amount to £2 12s. 6d.

In these houses defects were frequently found which necessitated, in addition to other items, the reconstruction of the drains.

The number of premises in which it has been found necessary for the whole of the drains to be relaid during the past twelve months was 136, 16 of those arising from the conversion of privies into water-closets, the remaining 120 being defective drains.

In the examination of drains and the supervision during re-construction, the following excavations, inspections, and tests have been made, viz.:—

Colour tests	...	...	...	...	...	50
Excavations	...	...	...	...	...	26
Inspections	...	...	...	...	...	5031
Rocket tests	...	...	...	...	...	6
Smoke machine tests	...	...	...	...	...	220
Hydraulic tests	...	...	...	...	...	423

Further progress has been made in the substitution of properly covered iron bins for the storage of house refuse.

Three hundred and eighty-one bins have been installed at the instigation of the Department during the year. Fifty-three ash-pits have been abolished as being unsatisfactory and a menace to health.

A sanitary labourer was constantly engaged during the summer supervising the removal of manure from stables, and the cleansing of Courts.

Disinfection of premises and removal of bedding for disinfection has been carried out for the military authorities.

Observations were taken for the prevention of smoke nuisance arising from factories, etc., and during the year it was found necessary to serve notices in four cases.

### MUNICIPAL LABORATORY.

The following is a statement of the work done in the Laboratory during the year.

Material from suspected cases of—

	Positive.	Negative.	Total.
Diphtheria ... ..	79	271†	350
Tubercle ... ..	20	27	47
Enteric Fever (Widal's Reaction)	2*	12	14
Cerebro Spinal Fever ... ..	2	20	22
Ringworm ... ..	8	2	10
Miscellaneous ... ..	1	0	1

Analysis of City Water Supply—

Routine Chemical Examinations ... ..	12
Routine Bacteriological Examinations ...	176
Examinations of Air—Bacteriological ...	20

† All diphtheria patients must shew a negative brushing before discharge from hospital.

\* A reaction is said to be positive if there is agglutination in 30 minutes in a dilution of 1 in 50.

### WATER SUPPLY.

A monthly chemical examination of water from a consumer's tap has been made throughout the year. Beyond shewing the

presence of flood in the river, notably in the autumn months, the water was satisfactory from a chemical point of view. The figures of the monthly analysis are given below:—

Date.	Source.	Parts per 100,000.			
		Chlorine.	Total Hardness.	Free Ammonia.	Albumoid Ammonia.
Jan. 16	Bramwell's Court ... ..	1·6	7·8	·0032	·0080
Feb. 11	Davies' Buildings, King Street ... ..	1·2	6·0	·006	·0097
Mar. 18	Kiln Yard, Linenhall Street ... ..	1·9	10·75	·0018	·0047
April 21	Athol Place, Crook Street ... ..	1·9	11·8	·0013	·0094
May 5	Parry's Court, Princess Street... ..	1·8	10·6	·0008	·0010
June 17	Greenock Place, Crook Street... ..	3·1	10·9	·0009	·0091
July 22	Edwards' Court, Princess Street ... ..	3·8	11·8	·0013	·0078
Aug. 12	Athol Place, Crook Street ... ..	3·6	11·5	·0009	·0073
Sept. 21	Greenock Place ... ..	3·25	11·9	·0006	·0056
Oct. 20	Potter's Court, Castle Street ... ..	1·7	10 0	·0008	·0176
Nov. '18	Holloway's Court, Crook Street ... ..	1·5	10·2	·0009	·0194
Dec. 30	Kiln Yard, Linenhall Street ... ..	1·00	10·4	·0034	·0166

**Bacteriological Examination.**—Samples of water from the river at the Water Company's intake, from each of the filter beds, and from the filtered water reservoir at the Water Company's Works and from a consumer's tap in the City, have been examined every fortnight throughout the year.

The highest number of germs growing at room temperature from 1 cubic centimeter of a filtered water was 54, and the lowest number 3. Of germs growing at blood heat the highest number was 23 (once) and the lowest 2 (6 times).

Typical *Bacillus Coli* was found on 10 occasions in 10 c.c. of water from various filters, but it was not found in typical form in the same quantity of water from the filtered water reservoir. It was found on 8 occasions in 10 c.c. of water from the consumer's tap.

Considering the source of the water supply those results are satisfactory.



The following table shews the figures for bacteriological examinations of the water during the year:—

Bacteriological Examination of City Water Supply, 1915.

Date.	Unfiltered River Water.		Filter 1.		Filter 2.		Filter 3		Filter 4		Filter 5.		Filter 6.		Filtered Water		Consumers' Tap.	
	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.	Gel.	B.
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1915																		
Jan. 7	3500	500	48	12														
Jan. 20	2850	480	43	17														
Feb. 4	3250	640	14	6														
Feb. 17	2875	220	8	7														
Mar. 3	3320	410	14	8														
Mar. 24	2900	300	10	6														
April 14	3750	190	21	13														
April 28	2350	210	20	6														
May 12	2450	170	31	10														
May 27	1946	195	16	6														
June 9	1560	210	11	8														
June 23	2700	280	47	14														
July 15	2550	195	12	5														
July 30	3850	190	3	4														
Aug. 5	4500	420	9	4														
Aug. 15																		
Sept. 9	2900	215	8	3														
Sept. 29	2120	120	10	3														
Oct. 13	2350	160	14	3														
Oct. 28	†	260	6	2														
Nov. 10	3400	181	7	4														
Nov. 25	3325	205	23	5														
Dec. 1	2850	310	23	8														
Dec. 15	2950	330	27	9														

\* Media grown over.

† Media liquified.



## CHESTER ISOLATION HOSPITAL.

The total number of cases treated in the Isolation Hospital during the year was 323, 76 more than in 1914. Of those cases 167 belonged to the City, the remainder being Military and cases from outside districts.

**Scarlet Fever.**—There were 128 cases of Scarlet Fever treated, of which 56 belonged to the City. There were two deaths, one being a City patient and one from an outside district.

**Diphtheria.**—One hundred and nineteen cases have been treated in the Diphtheria Wards. Of those 80 belonged to the City and include 4 cases taken in for quarantine, 2 diphtheria carriers, and 2 cases of tonsillitis, leaving 72 cases of diphtheria; 39 cases were treated from outside districts. The type of the disease was severe both in the beginning and end of the year, and some form of post diphtheritic paralysis was present in a large percentage of the patients. There were 8 deaths, 6 of City patients and 2 from outside districts.

**Enteric Fever.**—There were 10 cases treated during the year, and one death. Two of the cases belonged to the City.

**Staff.**—Two of the staff developed scarlet fever,

**Lectures.**—The usual Lectures on Nursing and Fevers were given during the winter.

# CITY AND COUNTY OF THE CITY OF CHESTER.

Table I.—Vital Statistics of Whole District during 1915 and previous years.

YEAR	Population estimated to Middle of each Year	BIRTHS			TOTAL DEATHS REGISTERED IN THE DISTRICT		TRANSFERABLE DEATHS		NETT DEATHS BELONGING TO THE DISTRICT			
		Un- corrected Number	Nett		Number †	Rate	Of Non- residents registered in the District †	Of Resi- dents not registered in the District †	Under 1 Year of Age		At all Ages	
			Number †	Rate					Number *	Rate per 1000 Nett Births	Number *	Rate
1	2	3	4	5	6	7	8	9	10	11	12	13
1910	39,404	...	992	25.1	577	14.6	47	...	137	145.5	601	15.2
1911	39,479	923	941	23.83	614	15.55	64	14	103	109.4	564	14.28
1912	39,548	901	905	22.88	668	16.89	77	9	89	98.34	600	15.17
1913	39,623	923	941	23.74	671	16.93	63	15	106	112.6	623	15.72
1914	39,689	917	925	23.31	597	15.04	64	28	84	90.81	561	14.13
1915	37,716	853	860	21.67	731	19.38	65	13	92	106.9	666	17.65

Total population at all ages, 39,028.

No. of inhabited houses, 8,716.

Area of District in acres (land and inland water), 2,862.

Average No. of persons per house, 4.65.

\* Total deaths occurring in Chester whether of residents or non-residents.

† Births and deaths corrected for those births and deaths properly belonging to Chester, but occurring outside the District, or occurring in the District but properly belong outside.

CITY AND COUNTY OF THE CITY OF CHESTER.

Table II.—Cases of Infectious Disease notified during the Year 1915.

NOTIFIABLE DISEASE	NUMBER OF CASES NOTIFIED										TOTAL CASES NOTIFIED IN EACH LOCALITY (e.g. Parish or Ward) OF THE DISTRICT					TOTAL CASES REMOVED TO HOSPITAL
	At all Ages	At Ages—Years						St. Mary's.	St. John's.	Trinity.	Bough- ton.	St. Oswald's				
		Under 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65						65 and upwards.			
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Cholera (C) Plague (P)	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Diphtheria(including Membraneous Croup)	72	17	49	3	2	1	...	...	9	12	20	17	70			
Erysipelas	12	...	...	...	4	6	2	...	1	4	4	1	0			
Scarlet Fever	57	9	45	2	1	...	...	...	7	14	22	8	53			
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...			
Enteric Fever	2	...	...	...	1	...	...	...	1	0	0	0	1			
Relapsing Fever (R)	...	...	...	...	...	...	...	...	...	...	...	...	...			
Continued Fever (C)	...	...	...	...	...	...	...	...	...	...	...	...	...			
Puerperal Fever	4	...	...	1	3	...	...	...	2	1	1	0	0			
Cerebro-spinal Meningitis	2	...	...	2	...	...	...	...	2	1	1	0	2			
Poliomyelitis	...	...	...	...	...	...	...	...	...	...	...	...	...			
Ophthalmia Neonatorum	5	...	...	...	...	...	...	...	1	2	0	2	0			
Pulmonary Tuberculosis	48	...	3	15	24	6	...	...	...	...	...	...	24			
Other forms of Tuberculosis	22	6	9	3	3	1	...	...	...	...	...	...	2			
Totals	224	5	32	106	26	38	14	2	23	34	48	28	152			



## CITY AND COUNTY OF THE CITY OF CHESTER.

Table III.—Causes of, and Ages at Death during the Year 1915.

CAUSES OF DEATH				NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.								TOTAL DEATHS whether of "Residents" or "Non- Residents" in Institu- tions in the District.	
				All Ages	Under 1 Year	1 and under 2	2 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65		65 or upwards
All causes	{	Certified	...										
		Uncertified	...										
Enteric Fever	...	...	...	1	...	...	...	1	...	...	...	...	1
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	...	...	...	18	4	7	7	...	...	...	...	...	...
Scarlet Fever	...	...	...	1	...	1	...	...	...	...	...	...	1
Whooping Cough	...	...	...	9	3	3	3	...	...	...	...	...	...
Diphtheria and Croup	...	...	...	8	...	3	3	2	...	...	...	...	8
Influenza	...	...	...	9	...	...	1	...	...	1	3	4	...
Erysipelas	...	...	...	4	...	...	...	...	...	...	1	3	2
Phthisis (Pulmonary Tuberculosis)	...	...	...	40	...	...	1	1	7	23	8	...	15
Tuberculous Meningitis	...	...	...	11	...	3	2	5	1	...	...	...	3
Other Tuberculous Diseases	...	...	...	10	1	3	...	...	...	4	...	2	5
Cancer, Malignant Disease	...	...	...	56	...	...	...	...	1	6	29	20	26
Rheumatic Fever	...	...	...	3	...	...	...	2	...	...	...	1	...
Meningitis	...	...	...	3	1	2	...	...	...	...	...	...	3
Organic Heart Disease	...	...	...	67	...	...	...	1	1	9	27	29	16
Bronchitis	...	...	...	67	8	2	1	1	...	3	13	39	24
Pneumonia (all forms)	...	...	...	50	12	4	9	...	...	9	9	7	18
Other Diseases of Respiratory Organs	...	...	...	6	1	...	...	...	...	1	2	2	1
Diarrhoea and Enteritis	...	...	...	26	19	6	...	1	...	...	...	...	8
Appendicitis and Typhlitis	...	...	...	5	...	...	...	...	1	1	1	2	8
Cirrhosis of Liver	...	...	...	6	...	...	...	...	...	2	3	1	...
Alcoholism	...	...	...	1	...	...	...	...	...	1	...	...	1
Nephritis and Bright's Disease	...	...	...	19	...	...	...	...	...	2	4	13	6
Puerperal Fever	...	...	...	2	...	...	...	...	...	2	...	...	...
Other Accidents and Diseases of Pregnancy and Parturition	...	...	...	4	...	...	...	...	1	3	...	...	1
Congenital Debility and Malforma- tion, including Premature Birth	...	...	...	22	20	...	1	1	...	...	...	...	1
Violent Deaths, excluding Suicide	...	...	...	18	4	...	1	...	...	4	5	4	21
Suicide	...	...	...	3	...	...	...	...	1	...	2	...	1
Other Defined Diseases	...	...	...	196	18	2	4	3	...	15	47	107	62
Diseases ill-defined or unknown	...	...	...	1	1	...	...	...	...	...	...	...	...
Totals	...	...	...	666	92	36	33	18	13	86	154	234	232

CITY AND COUNTY OF THE CITY OF CHESTER.

Table IV.—Infant Mortality during the Year 1915.

CAUSE OF DEATH	Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total Deaths 1 Month	1-3 Months	3-6 Months	6-9 Months	9-12 Months	Total Deaths under 1 Year
Small-pox ..	..	..	..	..	..	..	..	..	..	..
Chicken-pox ..	..	..	..	..	..	..	..	..	..	..
Measles ..	..	..	..	..	..	..	..	2	2	4
Scarlet Fever ..	..	..	..	..	..	..	..	1	2	3
Whooping Cough ..	..	..	..	..	..	..	..	..	..	..
Diphtheria and Croup ..	..	..	..	..	..	..	..	..	..	..
Erysipelas..	..	..	..	..	..	..	..	..	..	..
Tuberculous Meningitis ..	..	..	..	..	..	..	1	..	..	1
Abdominal Tuberculosis (b) ..	..	..	..	..	..	..	1	..	..	1
Other Tuberculous Diseases ..	..	..	..	..	..	..	..	..	..	..
Meningitis (not Tuberculous) ..	..	..	..	..	..	..	..	..	..	..
Convulsions ..	2	1	..	..	3	1	5	3	1	13
Laryngitis..	..	..	..	..	..	..	..	..	1	1
Bronchitis..	..	1	1	..	2	3	..	3	..	8
Pneumonia (all forms) ..	..	..	..	..	..	1	2	4	5	12
Diarrhoea ..	..	..	..	1	1	1	3	2	..	7
Enteritis ..	..	..	..	..	..	4	3	3	2	12
Gastritis ..	..	..	..	..	..	..	..	..	..	..
Syphilis ..	..	..	..	..	..	..	..	..	..	..
Rickets ..	..	..	..	..	..	..	..	..	..	..
Suffocation, Overlying ..	..	..	..	..	2	1	1	..	..	4
Injury at Birth ..	2	..	..	..	2	..	..	..	..	..
Atelectasis..	..	..	..	..	..	1	..	..	..	1
Congenital Malformations (c) ..	1	..	..	..	1	1	..	..	..	2
Premature Births ..	3	2	..	1	6	2	..	..	..	8
Atrophy, Debility and Marasmus ..	1	1	..	1	3	2	1	3	..	9
Other Causes ..	1	2	..	1	4	..	2	..	..	6
Totals ..	10	7	1	4	22	17	19	21	13	92

Nett Births in the Year	824	Nett Deaths in the Year	86
{ Legitimate	..	{ Legitimate Infants	..
{ Illegitimate	..	{ Illegitimate Infants	6

